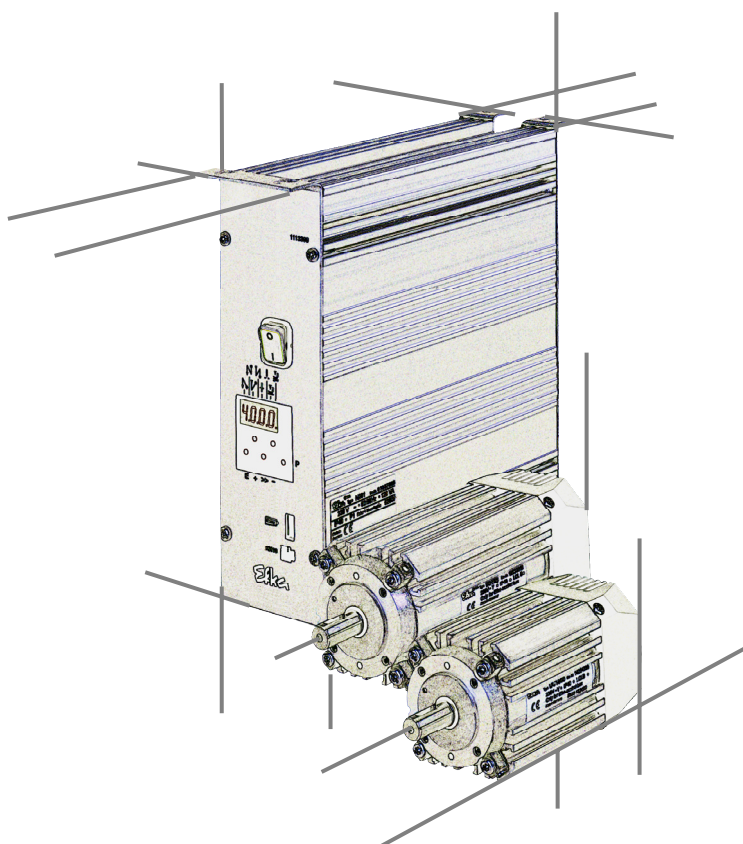




dc 1500
dc 1550

CONTROL

**Series 221/321 + 222/322
+ AB425S**



Instruction Manual

- General Operation

No. 402324 English

Important Notes

The particulars used in various figures and tables, such as type, program number, speed, etc., serve as examples. They may differ from those in your display.

For current versions of the Instructions for Use and Lists of Parameters, necessary for operating EFKA drives in accordance with regulations, please refer to the EFKA web site **www.efka.net**, page "**Downloads**".

On our web site you will also find the following supplementary instructions for this control:

- ✗ General instructions for use and programming
- ✗ Use with USB Memory Stick
- ✗ Use of the C200 compiler
- ✗ Adapter cords

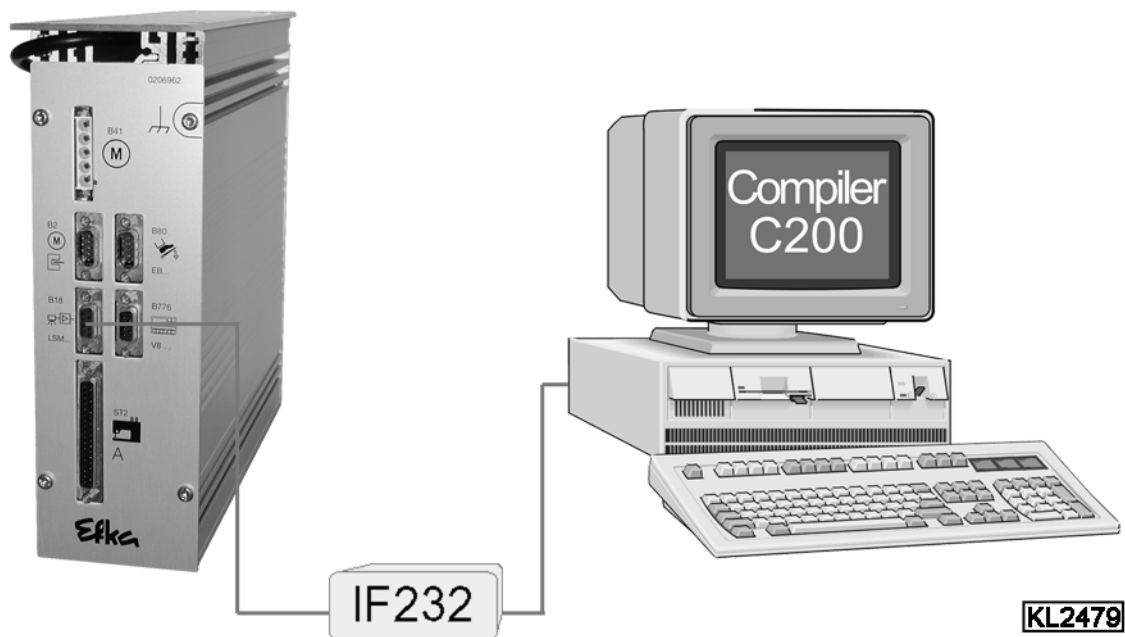
CONTENTS	Page
1 Use of the C200 Compiler	4
2 Control Operation	5
2.1 Access Authorization upon Command Input	5
2.2 Operation without Variocontrol	6
2.2.1 Code Number Input	6
2.2.2 Parameter Setting	7
2.2.2.1 Direct Selection of Parameter Number	7
2.2.2.2 Parameter Selection Using Key +/-	8
2.2.2.3 Changing Parameter Values	9
2.2.2.4 Immediate Storage of All Data Changes	10
2.2.3 Changing All Parameter Values at the Operator Level	10
2.2.4 Function Switchover	10
2.2.5 Direct Input of Maximum Speed Limitation	11
2.2.6 Program Identification on the Control	11
2.3 Operation Using Variocontrol V810, V820 or V850	13
2.3.1 Code Number Input on the V810	13
2.3.1.1 Parameter Input at the Operator Level on the V810	13
2.3.1.2 Parameter Input at the Technician/Supplier Level on the V810	14
2.3.2 Code Number Input on the V820/V850	14
2.3.2.1 Parameter Input at the Operator Level on the V820/V850	15
2.3.2.2 Parameter Input at the Technician/Supplier Level on the V820/V850	15
2.4 Program Identification	16
2.5 Direct Input of Maximum Speed Limitation (DED) with Control Panel	16
2.5.1 Setting on the V810 Control Panel	16
2.5.2 Setting on the V820/V850 Control Panel	16
2.6 Keys for Background Information (HIT) with V810/V820/V850	17
2.6.1 Example of HIT	17
2.6.2 Further Functions with V810/V820/V850	18
2.6.3 Special Functions with V820/V850	18
2.6.4 Programming the Disabling of Keys	19
2.7 Programming of Seams (TEACH IN)	19
2.7.1 Programming after Code Number Input	21
2.7.2 Programming without Code Number Input	21
2.7.3 Detailed Example	22
2.7.4 Inserting a Seam or Pattern	24
2.7.5 Deleting a Seam or Pattern	24
2.7.6 Execution (Pattern) Mode	25
2.7.7 Further Settings for TEACH IN	25
2.7.8 Disabling the Keys on V820/V850 with Activated TEACH IN	26
3 Connection of Accompanying Devices	27
3.1 Connection of a Sewing Light with Transformer	27
3.2 Connection Scheme of a SM210A Stepping Motor Control	28

1 Use of the C200 Compiler

The Efka C200 Compiler is a software tool for the programming of upgrade control functions. In addition to operation with or without the control panels Variocontrol V810, V820 or V850, the user-friendly V900 touchscreen panel can be used for compiler programming.

The compiler provides the following basic functions:

- predetermined functions which are integrated by means of a system file
- approx. 64kB for user programs and data
- error management routine with automatic error marking
- loader for program storing in the control
- a multi-tasking time sharing mechanism



The control (socket B18) and the computer (socket com1) are connected using interface IF232-3.

Set of special C200 Compiler accessories consisting of:

order no. 1113262

- C200 Compiler Software CD-ROM
- C200 Compiler User Manual
- EFKANET IF232-3 Interface

See C200 Compiler user manual for more information on programming and use of control commands.

2 Control Operation

The setting of functions and programming of parameters is possible with or without the V810, V820 or V850 control panel.

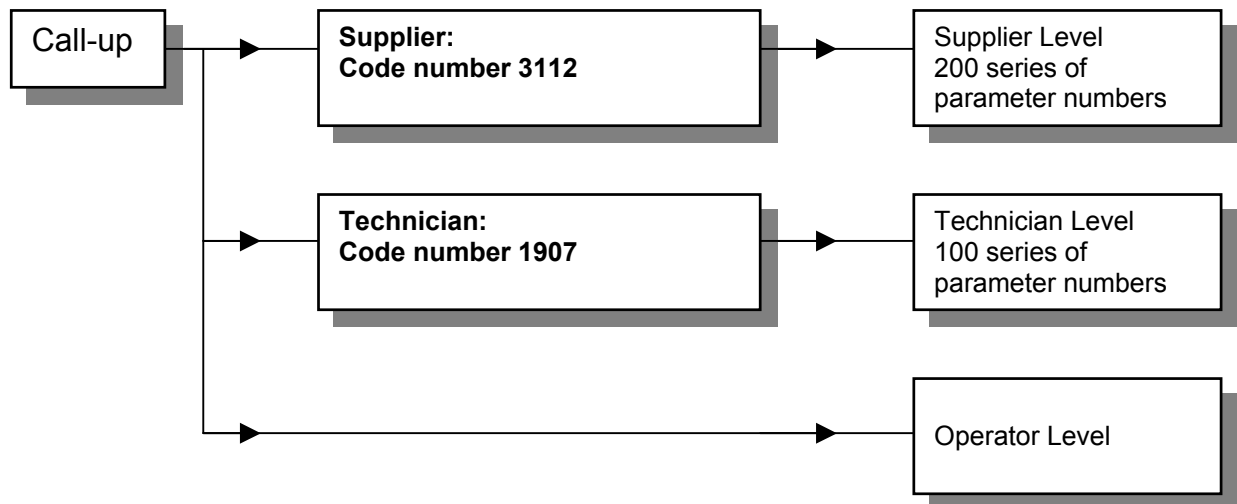
Further control functions can be programmed using the Efka “**Compiler C200**” software (special accessory) and the user-friendly V900 touchscreen panel.

2.1 Access Authorization upon Command Input

In order to prevent unintentional changes of preset functions the command input is distributed at various levels.

The following persons have access:

- the supplier to the highest and all subordinate levels by means of a code number
- the technician to the next lower and all subordinate levels by means of a code number
- the operator to the lowest level without code number



2.2 Operation without Variocontrol

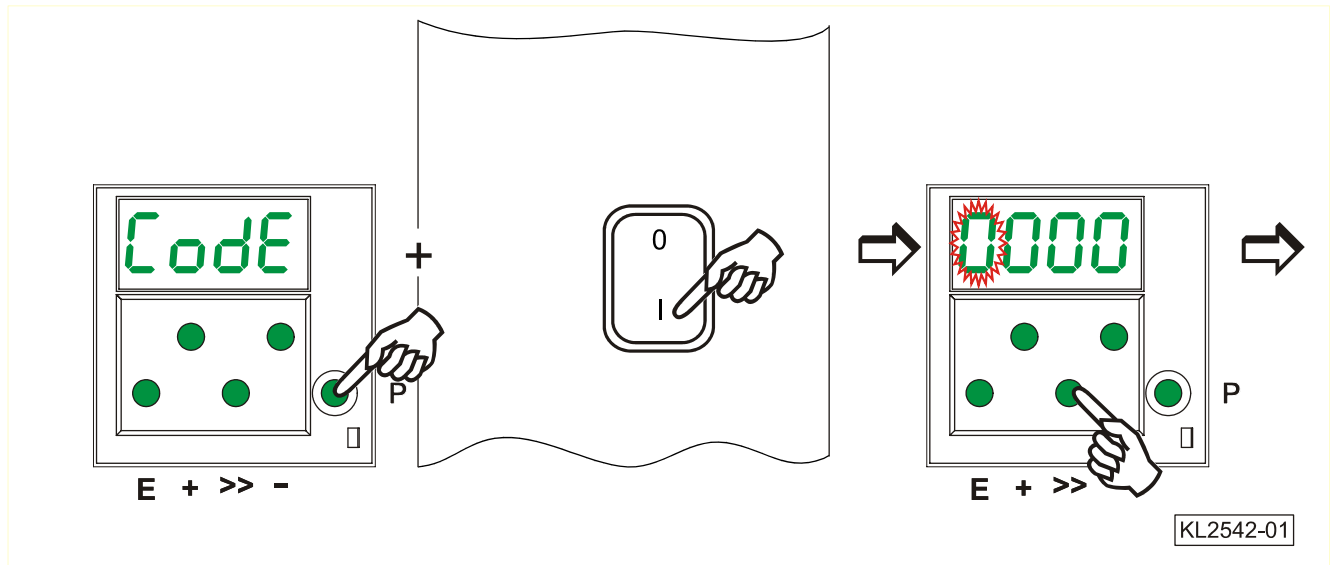
2.2.1 Code Number Input

Conventions of the display representation

- If there are **no** dots between the digits, a **value** is displayed.
- If there are **are** dots between the digits, a **parameter number** is displayed.

1. Press the **P** key and turn power on

2. Press key **>>** (1st digit blinks)

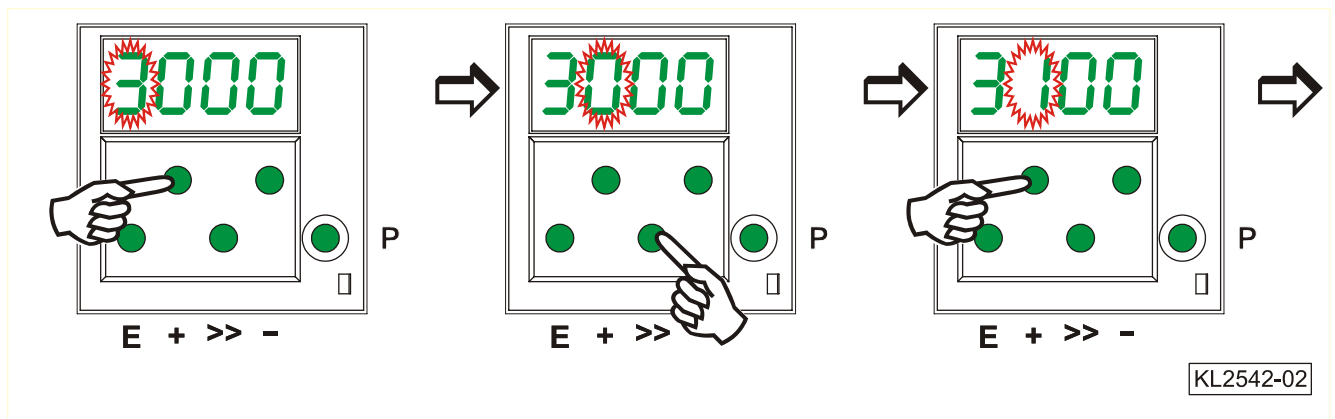


3. Press key **+/-** to select the 1st digit

4. Press key **>>** (2nd digit blinks)

5. Press key **+/-** to select the 2nd digit

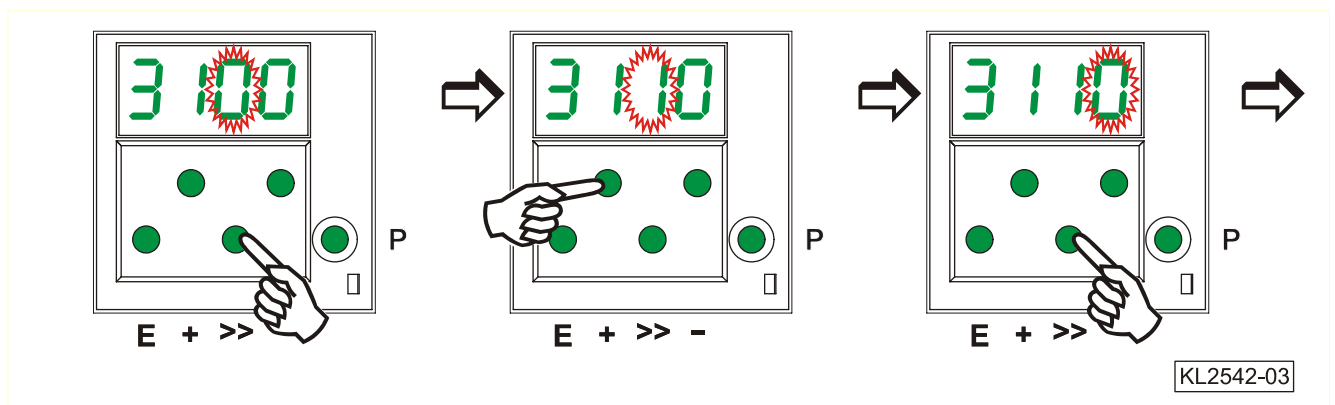
Technician level → Code no. 1907
Supplier level → Code no. 3112



6. Press key **>>** (3rd digit blinks)

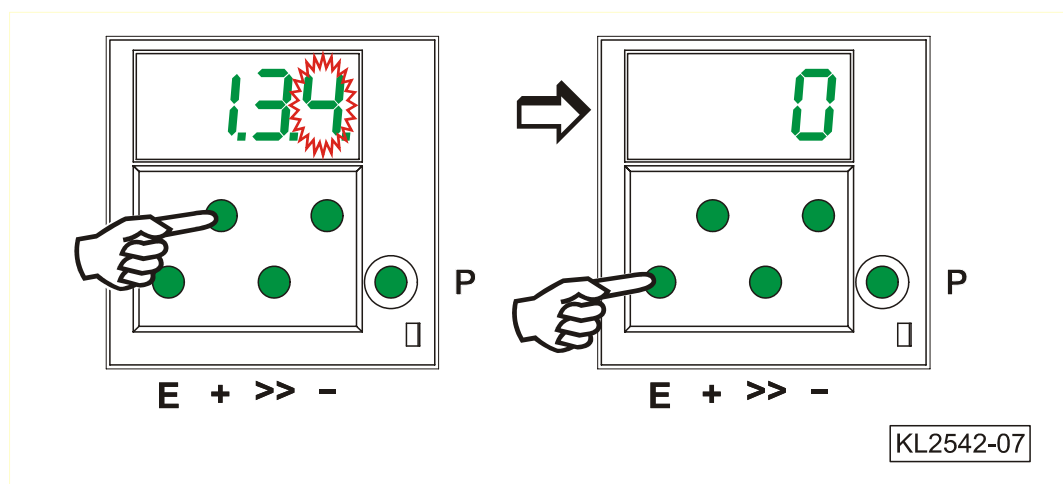
7. Press key **+/-** to select the 3rd digit

8. Press key **>>** (4th digit blinks)



9. Press key +/- to select the 4th digit

10. Press the E key. The parameter number is displayed.



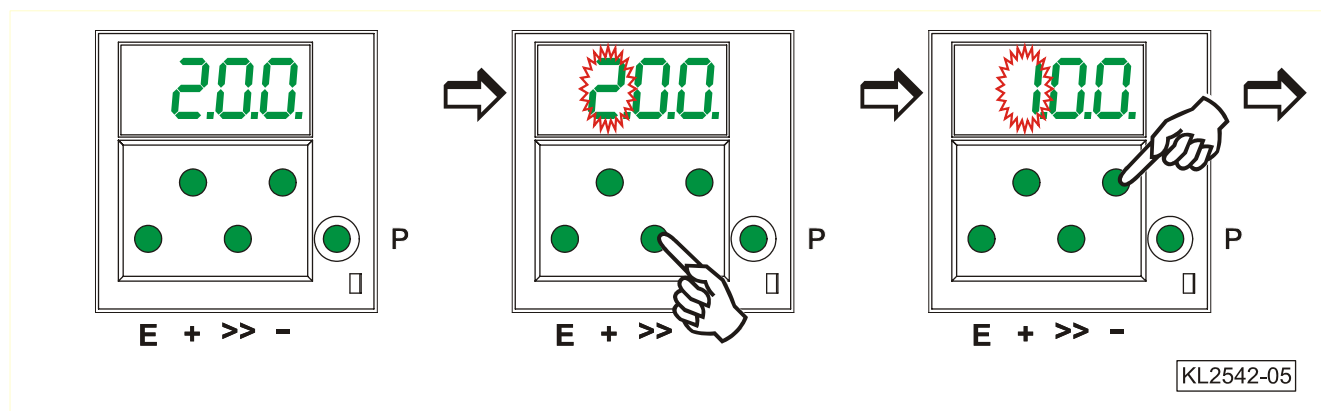
2.2.2 Parameter Setting

2.2.2.1 Direct Selection of Parameter Number

1. Display after code number input at the programming level

2. Press key >> (1st digit blinks)

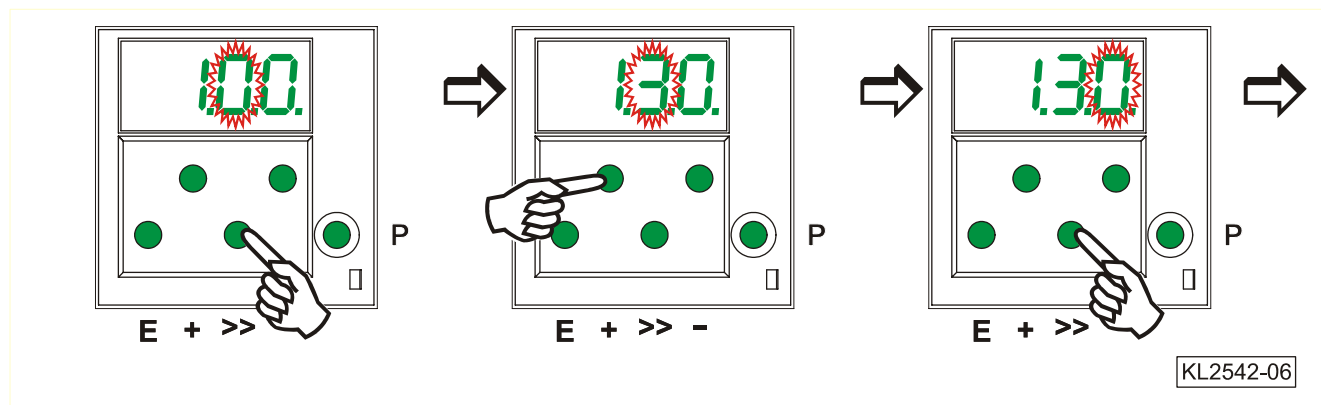
3. Press key +/- to select the 1st digit



4. Press key >> (2nd digit blinks)

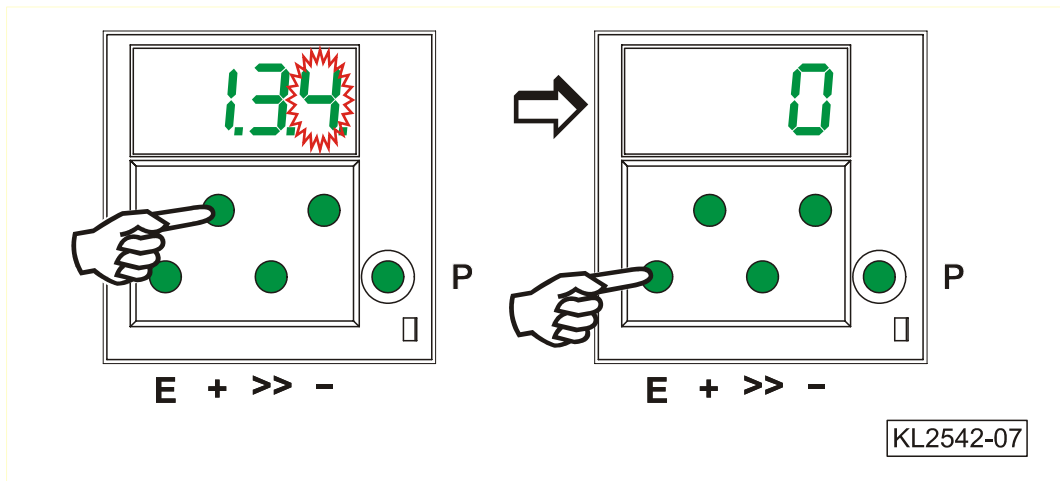
5. Press key +/- to select the 2nd digit

6. Press key >> (3rd digit blinks)



7. Press key +/- to select the 3rd digit

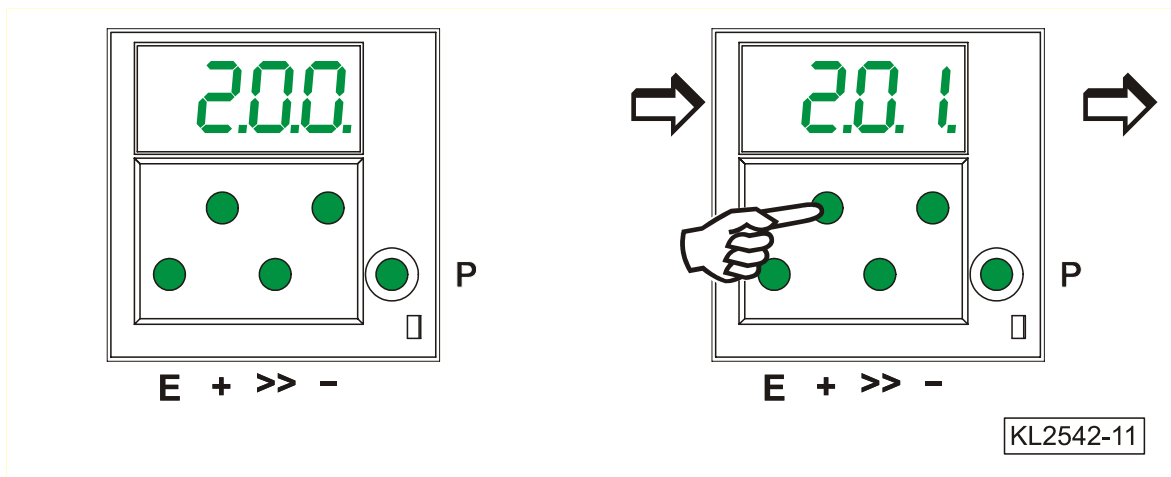
8. Press the E key. The parameter value is displayed.



2.2.2.2 Parameter Selection Using Key +/-

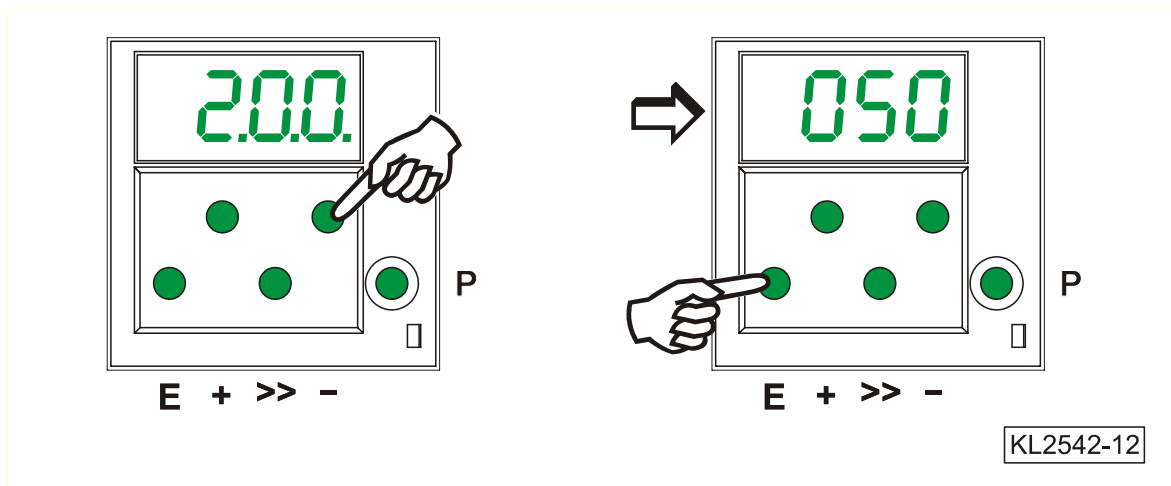
1. After code number input at the programming level

2. Select the next parameter by pressing key +



3. Select the previous parameter by pressing key -

4. After pressing the E key, the parameter value is displayed



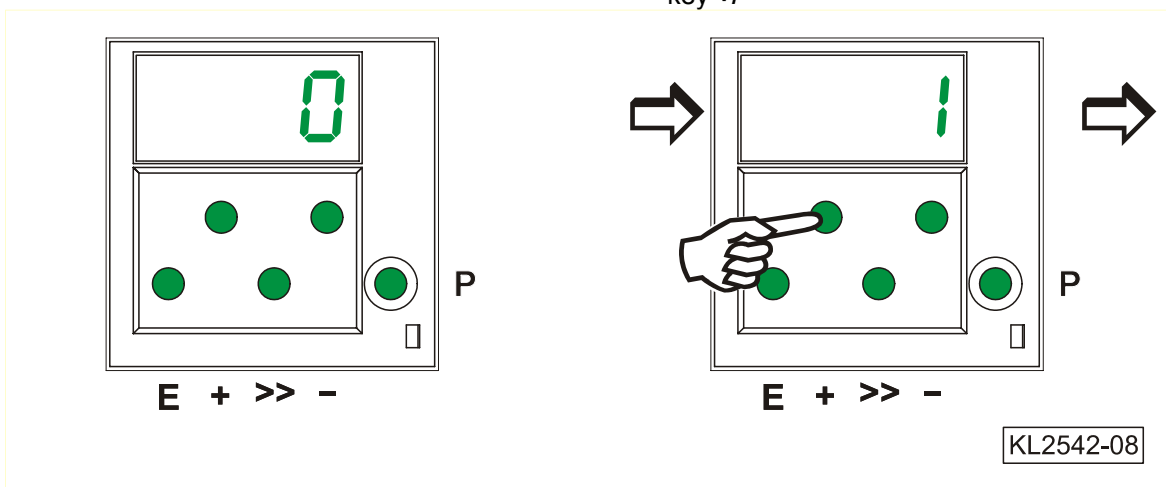
Note:

The varied parameter values will be permanently stored only after beginning to sew or by varying parameter 401 (see chapter "Immediate Storage of All Data Changes").
If the power is turned off before storing the parameter values, the initial values remain in effect.

2.2.2.3 Changing Parameter Values

1. Display after parameter value selection

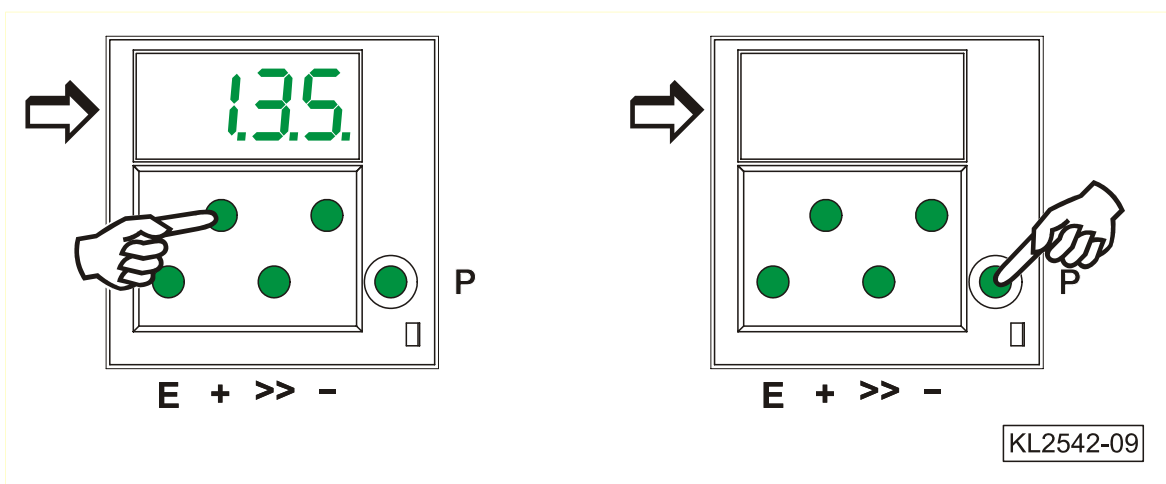
2. Change the parameter value by pressing key +/-



Option 1

Press the **E** key. The **next** parameter number is displayed.

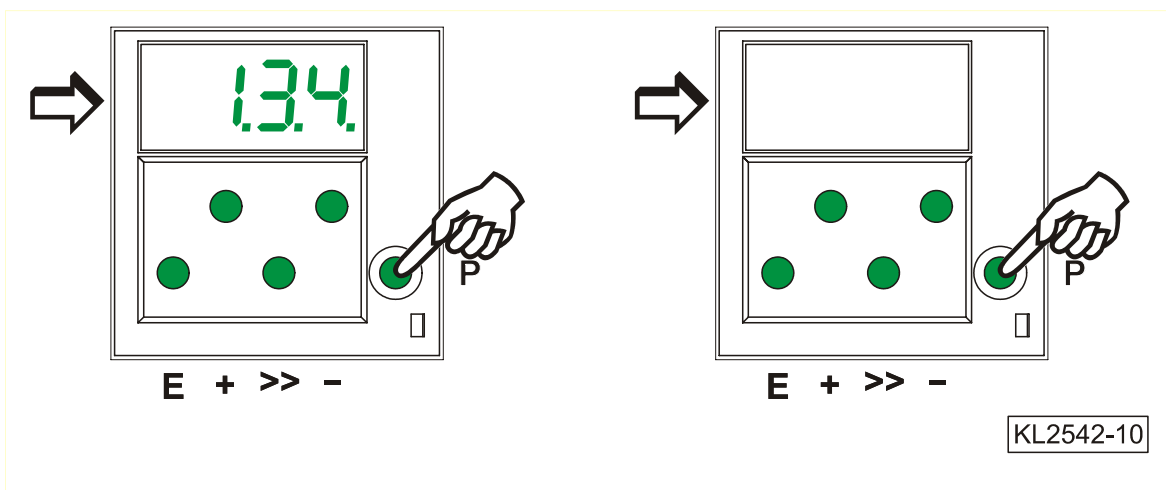
Press the **P** key. Exit programming.
The changed parameter values will be saved when you begin sewing again.



Option 2

Press the **P** key. The **same** parameter number is displayed.

Press the **P** key. Exit programming.



2.2.2.4 Immediate Storage of All Data Changes

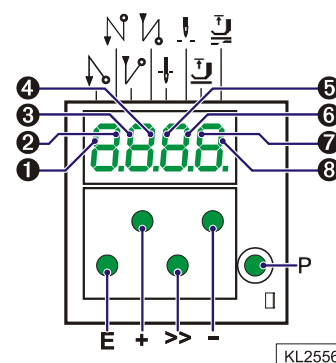
Functions	Parameter
Immediate storage of all data changes	(EEP) 401

- Input code number 3112 after power On → Press the **E** key
- Input parameter 401 → Press the **E** key
- Set display from **0** to **1** → Press the **E** or **P** key
- All data is stored!

2.2.3 Changing All Parameter Values at the Operator Level

All parameter values at the operator level can be changed without code number input (see List of Parameters).

- Press the **P** key → The first parameter number will be displayed
- Press the **E** key → The parameter value will be displayed
- Press the **+ / -** key → The parameter value will be changed
- Press the **E** key → The next parameter will be displayed
- Press the **E** key → The parameter value will be displayed
- Press the **+ / -** key → The parameter value will be changed etc.
- Press the **P** key twice → Exit programming at the operator level



2.2.4 Function Switchover

Switchable functions can be changed by pressing the appropriate key. The switching state is indicated by the upper vertical segments of the 4 digit numerical display. In the above illustration the segments are numbered from 1 to 8.

Assignment of functions to keys and segments of the numerical display

Function	Key	Segment Number	
Single start backtack	E (S2)	1 = on	2 = off
Double start backtack	E	1 = off	2 = on
Start backtack Off	E	1 = off	2 = off
Single end backtack	+ (S3)	3 = on	4 = off
Double end backtack	+	3 = off	4 = on
End backtack Off	+	3 = off	4 = off
Sewing foot lift at stop in the seam (automatic)	- (S4)	5 = on	6 = off
Sewing foot lift at the seam end (automatic)	-	5 = off	6 = on
Sewing foot lift at stop in the seam and at the seam end (automatic)	-	5 = on	6 = on
Sewing foot lift (automatic) Off	-	5 = off	6 = off
Basic position down (position 1)	>> (S5)	7 = on	8 = off
Basic position up (position 2)	>>	7 = off	8 = on

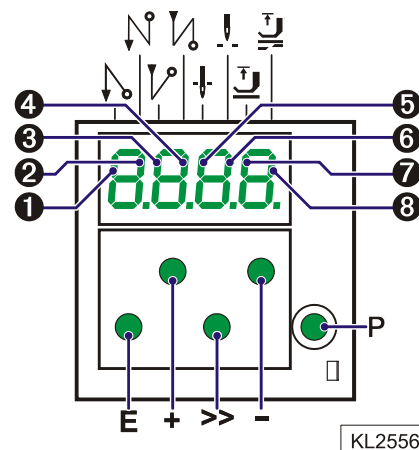
For variations of the functions described in this table please refer to the instruction manual corresponding to the respective type of control.

2.2.5 Direct Input of Maximum Speed Limitation

The maximum speed of the machine must be limited to the specific level according to the application. Do the setting at the operator level on the control operator panel.

The actual value is shown on the display and can be changed using key +/- during operation or at intermediate machine stop.

Important! If the speed is changed, it is saved only after trimming and when you begin sewing again.

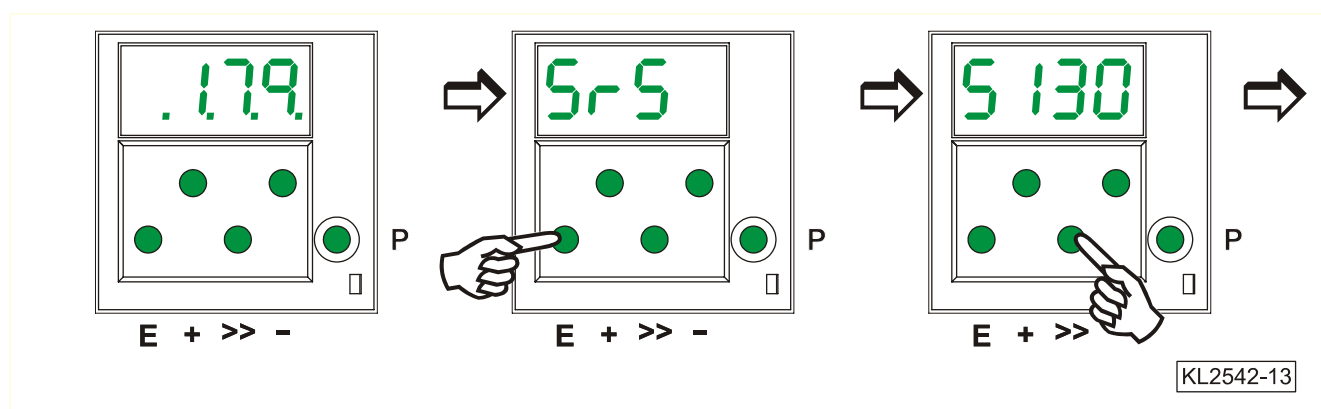


2.2.6 Program Identification on the Control

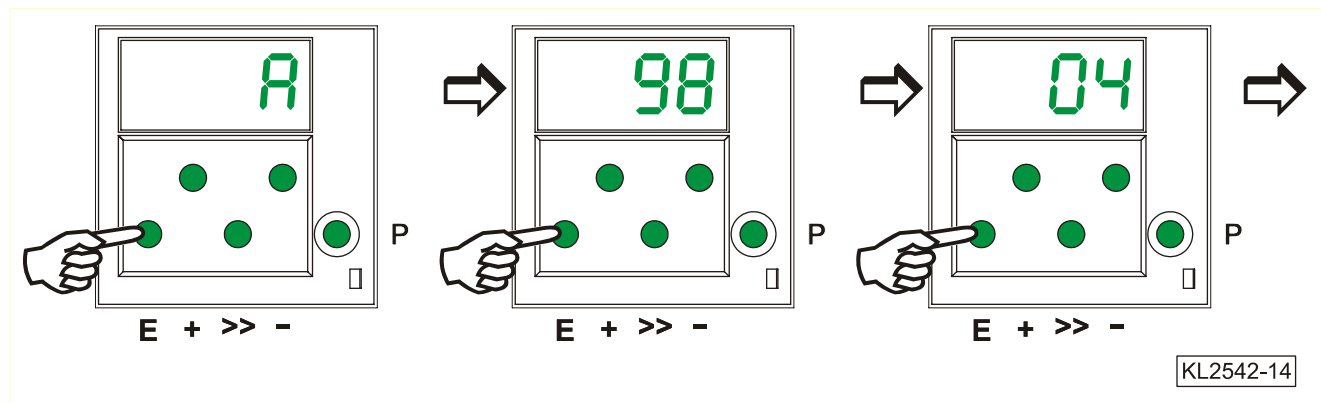
Function without control panel	Parameter
Program number, modification index and identification number display	179

After having selected parameter 179, the following information (example) is displayed successively:

1. Select parameter 179.
2. Press the E key.
Sr5 is displayed.
3. Press key >>.
Display of program number

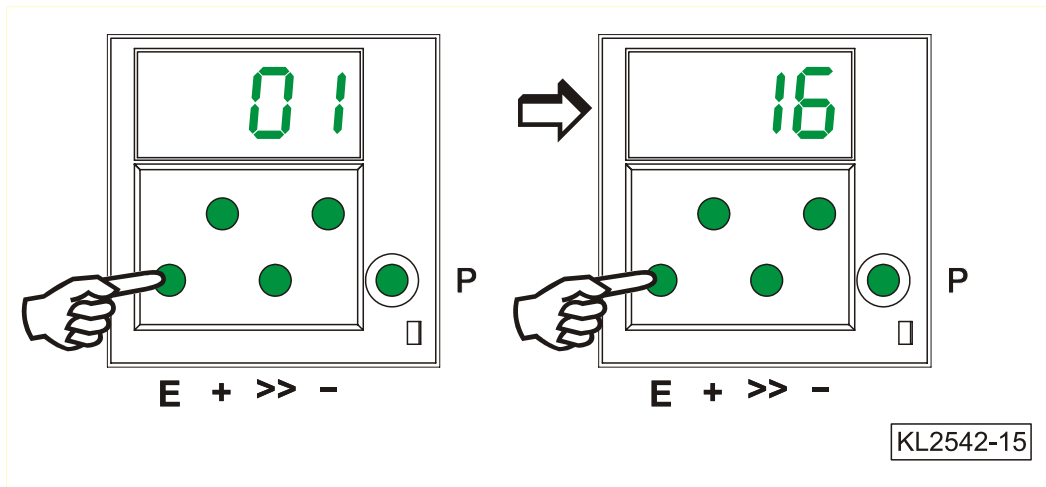


4. Press the E key.
The program modification index is displayed.
5. Press the E key.
The identification number digits 1 and 2 are displayed.
6. Press the E key.
The identification number digits 3 and 4 are displayed.



7. Press the **E** key.
The identification number
digits 5 and 6 are displayed.

8. Press the **E** key.
The identification number
digits 7 and 8 are displayed.



The routine is repeated by pressing the **E** key again.
Exit the routine after pressing the **P** key once. The next parameter number is displayed.
Exit programming after pressing the **P** key. The drive is again ready for sewing.

2.3 Operation Using Variocontrol V810, V820 or V850

2.3.1 Code Number Input on the V810

Technician Level Code Number => 1907 and Supplier Level Code Number => 3112

Example: Technician level CODE number selection on the V810

	TURN POWER OFF.		
P +	TURN POWER ON. First digit blinks.	→	C - 0 0 0 0
+ -	Press key + or - to select the first digit.	→	C - 1 0 0 0
»	Press key >>. Second digit blinks.	→	C - 1 0 0 0
+ -	Press key + or - to select the second digit.	→	C - 1 9 0 0
» »	Press key >> twice. Fourth digit blinks.	→	C - 1 9 0 0
+ -	Press key + or - to select the fourth digit.	→	C - 1 9 0 7
E	If the CODE number is correct, the first PARAMETER number at the selected level is displayed.	→	F - 1 0 0

2.3.1.1 Parameter Input at the Operator Level on the V810

Example: CODE number has not been input

	TURN POWER ON.	→	A b 2 2 1 A
P	First parameter at the operator level is displayed.	→	F - 0 0 0
+	Second parameter at the operator level is displayed. The next or previous parameter can be called by pressing key +/-.	→	F - 0 0 1
E	Parameter value is displayed.	→	0 0 3
+	Change parameter value by pressing key +/-.	→	X X X
E	Parameter value is entered. Display advances to the next parameter.	→	F - 0 0 2
+	Press key + several times until the desired parameter is displayed.	→	F - 0 0 9
E	Parameter value is displayed.	→	0
+	New parameter value is displayed.	→	1

E	Next parameter is displayed.	→	F - 0 1 3
or			
P	Exit programming.	→	A b 2 2 1 A

These values are saved when you begin sewing. They remain in effect even after turning the machine off. Storage without beginning to sew is possible using parameter 401.

NOTE

The parameter number can also be selected directly, like the code number.

2.3.1.2 Parameter Input at the Technician/Supplier Level on the V810

Example: After CODE number input at the technician level.

	After CODE number input, the first PARAMETER number is displayed.	→	F - 1 0 0
+	Press key + . The next parameter number is displayed.	→	F - 1 1 0
E	Press the E key. The parameter value is displayed.	→	0 1 8 0
+ -	Change the parameter value.	→	0 X X X
E	Parameter value is entered. Display advances to the next parameter.	→	F - 1 1 1
or			
P	Parameter value is entered. The actual PARAMETER number is displayed.	→	F - 1 1 0
or			
P P	Press the P key twice. Exit programming.	→	A b 2 2 1 A

These values are saved when you begin sewing. They remain in effect even after turning the machine off. Storage without beginning to sew is possible using parameter 401.

2.3.2 Code Number Input on the V820/V850

Technician Level Code Number => 1907 and Supplier Level Code Number => 3112

Example: Technician level CODE number selection on the V820/V850

TURN POWER OFF.

P +	TURN POWER ON.	→	C-0000
1 9 0 7	Input CODE number.	→	C-1907
E	If CODE number is incorrect, repeat input.	→	C-0000 InFo F1
E	If CODE number is correct, the first PARAMETER number at the selected level is displayed.	→	F-100

2.3.2.1 Parameter Input at the Operator Level on the V820/V850

Example: CODE number has not been input.

	TURN POWER ON.	→	4000 Ab221A
P	Display shows no reading.	→	
E	First parameter at the operator level is displayed. PARAMETER number is not displayed.	→	c2 003
+ -	Change the parameter value.	→	c2 XXX
E	Parameter value is entered. Display advances to the next parameter.	→	c1 003
or			
P	Exit programming.	→	4000 Ab221A

2.3.2.2 Parameter Input at the Technician/Supplier Level on the V820/V850

Example: After CODE number input at the technician level.

	After CODE number input, the first PARAMETER number is displayed.	→	F-100
E	The most significant digit of the PARAMETER number blinks.	→	F-100
1 1 0	Input desired PARAMETER number.	→	F-110
E	If PARAMETER number is incorrect, repeat input.	→	F-XXX InFo F1
E	If PARAMETER number is correct	→	F-110 n1 180
+ -	Change the parameter value.	→	F-110 n1 XXX
E	Parameter value is entered. Display advances to the next parameter.	→	F-111 n2- 4000
or			
P	Parameter value is entered. A new PARAMETER number can be selected.	→	F-XXX
or			
P P	Press the P key twice. Exit programming.	→	4000 Ab221A

These values are saved when you begin sewing. They remain in effect even after turning the machine off. Storage without beginning to sew is possible using parameter 401.

2.4 Program Identification

Function with control panel	Parameter
Program number, modification index and identification number display	179

Display example parameter 179 on the V810 control panel:

- Select parameter 179.
- Press the **E** key → **Sr5 [°]** is displayed
- Press the **>>** key → e. g. **5321H** is displayed (Program number with index)
- Press the **E** key → e. g. **010823** is displayed (1st part of date)
- Press the **E** key → e. g. **15** is displayed (2nd part of date)
- Press the **E** key → e. g. **1F68** is displayed (EPROM check sum)
- Press the **P** key twice → **dA321G** is displayed (Sewing process can be started)




Display example parameter 179 on the V820/V850 control panel:

- Select parameter 179.
- Press the **E** key → **F-179 Sr5 [°]** is displayed
- Press the **>>** key → e. g. **PrG 5321H** is displayed (Program number with index)
- Press the **E** key → e. g. **dAt 01082315** is displayed (Date)
- Press the **E** key → e. g. **chk 1F68** is displayed (EPROM check sum)
- Press the **E** key → e. g. **132650210015** is displayed (Serial number)
- Press the **E** key → e. g. **Skn 01047543** is displayed (Control box number)
- Press the **P** key twice → **4000 dA321G** is displayed (Sewing process can be started)

2.5 Direct Input of Maximum Speed Limitation (DED) with Control Panel



The maximum speed of the machine must be limited to the specific level according to the application. Do the setting at the operator level using key **+/-** at any time. The actual value is shown on the display. The speed setting range is between parameter 111 (upper limit) and parameter 121 (lower limit).

2.5.1 Setting on the V810 Control Panel

	Type designation is displayed	→	A b 2 2 1 A
	Maximum speed is displayed (reading remains on for max. 5 seconds)	→	4 0 0 0
 	Change the value; e. g. press key – 8 times !	→	3 2 0 0
After approx. 5 seconds the display shows		→	A b 2 2 1 A

2.5.2 Setting on the V820/V850 Control Panel

Actual display value, in the direct mode

	Maximum speed and type designation are displayed	→	4000 Ab221A
 	Change the maximum speed value; e. g. press key – 8 times !	→	3200 Ab221A

NOTE

Changing the setting of the maximum speed limitation also affects the start backtack, end backtack and stitch counting speeds.

2.6 Keys for Background Information (HIT) with V810/V820/V850

NOTE

The following functions are possible with the V820 and V850 control panels, to a limited extent with the V810.

For fast operator information, the values of functions switched on using keys 1, 2, 3, 4 and 9 are displayed on the control panel for approx. 3 seconds. During this time, the respective values can be varied directly by pressing key + or -.

2.6.1 Example of HIT

Increase stitch-count seam section from 20 stitches to 25 stitches.

Stitch-count function (key 2) is off.

↓	Display after power on	→	4000 Ab221A
2	Press key 2 briefly. Left-hand arrow and stitch-count function are on.	→	Stc 020
+	Press key +. Increase the number of stitches from 20 to 25.	→	Stc 025
	Display after approx. 3 seconds	→	4000 Ab221A

Stitch-count function (key 2) is already on.

↓	Display after power on	→	4000 Ab221A
2	Press key 2 for at least 1 second. Left-hand arrow goes off momentarily; stitch-count function is on.	→	Stc 020
+	Press key +. Increase the number of stitches from 20 to 25.	→	Stc 025
	Display after approx. 3 seconds.	→	4000 Ab221A

These values are saved when you begin sewing. They remain in effect even after turning the machine off. Storage without beginning to sew is possible using parameter 401.

Function key F

Various parameters, even higher-level parameters, can be switched on or off by pressing the function key (key 9). The following functions may be assigned to the function key:

1. Softstart ON/OFF
2. Ornamental backtack ON/OFF
3. Sewing start blocked with light barrier uncovered ON/OFF
4. Unlocking the chain ON/OFF
5. Signals A1 and/or A2 On/Off with slide-in strips 1...4 (left-hand arrow = A1, right-hand arrow = A2)
6. Signal A1 On/Off
7. Signal A2 On/Off

The key assignment can be changed as follows:

	Display after power on	→	4000 Ab221A
P	Press the P key.	→	
E	Press the E key.	→	c2 002

E	Press the E key several times until the letter symbol -F- appears. (ornamental backtack On/Off)	→	-F- 2
-	Press key - . (softstart On/Off)	→	-F- 1
P	Press the P key.	→	4000 Ab221A

The assignment is completed.

The number of softstart stitches can be changed as follows:

Example: change number of stitches from 1 to 3 (softstart function (key 9) is off).

9	Press key 9 briefly. The arrow above the key lights up (softstart function is On)	→	SSc 001
+	Press key + . Number of stitches increases.	→	SSc 003
	Display after 3 seconds	→	4000 Ab221A

Example: change number of stitches from 1 to 3 (softstart function (key 9) is already on).

9	Press key 9 for at least 1 sec. The arrow above the key goes off momentarily (softstart function is On)		SSc 001
+	Press key + . Number of stitches increases.	→	SSc 003
	Display after 3 seconds	→	4000 Ab221A

These values are saved when you begin sewing. They remain in effect even after turning the machine off.
Storage without beginning to sew is possible using parameter 401.

2.6.2 Further Functions with V810/V820/V850

- Press key **>>** → The most significant digit blinks.
- Press key **+/-** briefly → The blinking digit changes by ± 1 .
- Keep key **+/-** pressed → The blinking digit keeps changing its value, as long as the key is pressed down.
- Press key **>>** once more → The next digit blinks.
- Press key **+/-** as above
- Press the **E** key → The setting is completed.

With the code number and parameter number there is no carry over when changing from **0** to **9** or vice versa. Parameter values are, however, carried over. Therefore, you can use key **+/-** to change the value between the minimum and maximum value.

If the value change is significant, it is better to use key **>>**. If the value change is insignificant, use keys **+/-**. For setting the minimum or maximum value, select the most significant digit using key **>>**. Then keep pressing key **-** for the minimum or key **+** for the maximum value.

In addition to the above description direct input of values is possible using keys **0...9** on V820/V850.

2.6.3 Special Functions with V820/V850

Example: Quick setting of minimum or maximum values.

2	0	0	Select parameter 200.	→	F-200
E			Press the E key. The set value is displayed.	→	F-200 t1 050

0	0	0	Press key 0 three times. The minimum value is displayed.	→	F-200 t1 000
9	9	9	Press key 9 three times. The maximum value is displayed.	→	F-200 t1 500

2.6.4 Programming the Disabling of Keys

Function with or without control panel		Parameter
Disabling the P and E keys on the control panels and the P key on the control	(EPE)	326
Disabling the + and - keys on the control panels	(EPm)	327
Disabling the E , + , - and >> keys on the control	(ob)	328

The **P** and **E** keys on the control panels can be enabled or disabled using **parameter 326**. On the control, only the **P** key can be disabled using this parameter.

326 = 0	The P and E keys are Off
326 = 1	The P key is On and the E key is Off
326 = 2	The P key is Off and the E key is On
326 = 3	The P and E keys are On

The **+** and **-** keys as well as the functions “direct input of maximum speed limitation” and “background information keys” can be enabled or disabled on the control panels and the function “direct input of maximum speed limitation” on the control using **parameter 327**.

327 = 0	Keys + and - are disabled (on the control, only the function “direct input of maximum speed limitation” disabled).
327 = 1	Keys + and - are enabled

The **E**, **+**, **-** and **>>** keys on the control can be disabled using **parameter 328**.

328 = 0	The E , + , - and >> keys are disabled
328 = 1	The E , + , - and >> keys are enabled

Keys **1...4** on the V810 and **1...0** on the V820/V850 can be disabled using one of the following parameters.

291 = 0	Keys 1...4 on control panel V810 are disabled.
292 = 0	Keys 1...0 on control panel V820/V850 are disabled.

The **F1** and **F2** keys can be disabled using one of the following parameters.

293 = 0	The F1 key on the control panels is disabled.
294 = 0	The F2 key on the control panels is disabled.

NOTE

Key disabling can be canceled after power On and inputting the code number.

2.7 Programming of Seams (TEACH IN)

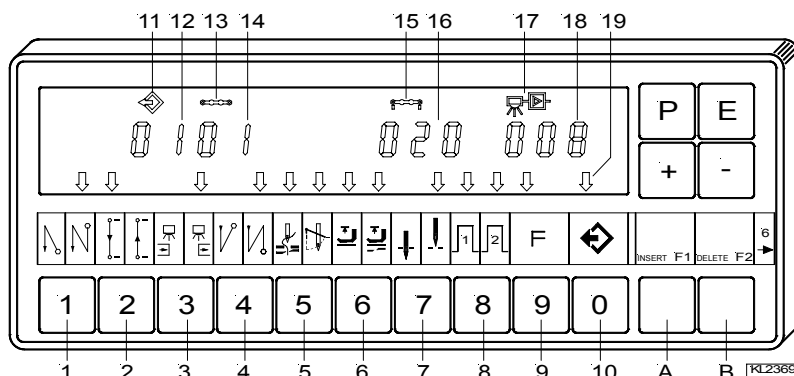
- A maximum of 99 patterns with a total of 99 seams can be programmed, i. e. 1 pattern with 99 seams each or 99 patterns with 1 seam each. In between, all combinations are possible.
- Programming is possible with or without code number.
- The functions “start backtack”, “end backtack”, “stitch counting”, “light barrier”, “thread trimmer”, “sewing foot lift” and “needle positions” can be assigned individually to each seam.
- The functions of signals A1 and A2 can also be assigned to each seam, on condition that a respective mode has been selected. The corresponding slide-in strip 6, 8, 9 or 10 should be inserted into the V820 control panel.
- The number of stitches for start and end backtack and stitch counting as well as the compensating stitches for the light barrier function can be programmed individually for each seam section.
- Several counted seam sections can be linked (key 9).

Note: The “TEACH IN” function has been changed as compared to the 62 and 82 type series!

Seams and/or patterns can be added by pressing the **INSERT F1** key or erased by pressing the **DELETE F2** key. Before programming new patterns and/or seams it is advisable to delete previously saved patterns and/or seams by pressing the **DELETE F2** key according to chapter “Deleting a Seam or Pattern”. If patterns or seams are to be inserted between existing ones, press the **INSERT F1** key according to chapter “Inserting a Seam or Pattern”.





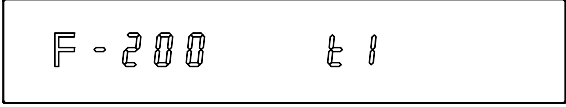

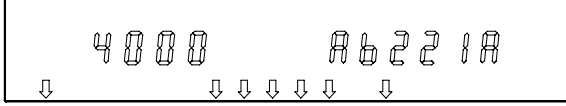




Example: 3 patterns are in the memory. Delete the 2nd pattern by pressing the **DELETE F2** key. The 3rd pattern takes the place of the 2nd pattern. A new 2nd pattern can be installed by pressing the **INSERT F1** key. The pattern in 2nd place will go back to being pattern no. 3.
For adding patterns and/or seams proceed as described in the following chapters.

Functional elements and indicators for the programming of seams TEACH IN



Position #	Function	Position #	Function
1	Single start backtack On (left-hand arrow)	8	Signal A1 On (left-hand arrow)
	Double start backtack On (right-hand arrow)		Signal A2 On (right-hand arrow)
	Start backtack Off		Signal A1 and A2 On (both arrows)
2	Counted seam forward On (left-hand arrow)		Signal A1 and A2 Off
	Counted seam backward On (right-hand arrow)	9	Switching from one seam to the next On (left-hand arrow)
	Counted seam Off		Switching from one seam to the next Off
3	Light barrier uncovered/covered On (left-hand arrow)	10	Programmed seams TEACH IN On (left-hand arrow)
	Light barrier covered/uncovered On (right-hand arrow)		Programmed seams TEACH IN Off
	Light barrier Off	11	Program symbol
4	Single end backtack On (left-hand arrow)	12	Display of program number
	Double end backtack On (right-hand arrow)	13	Seam symbol
	End backtack Off	14	Display of seam number
5	Thread trimmer On (left-hand arrow)	15	Symbol for number of stitches of a seam
	Thread wiper On (right-hand arrow)	16	Display of number of stitches
	Thread trimmer and thread wiper On (both arrows)	17	Light barrier symbol
	Thread trimmer and thread wiper Off	18	Display of light barrier compensating stitches
6	Sewing foot in the seam On (left-hand arrow)	19	Arrow for TEACH IN
	Sewing foot after seam end On (right-hand arrow)	A	INSERT → Insert seams or patterns
	Sewing foot in the seam and after seam end On (both arrows)	B	DELETE → Delete seams or patterns
	Sewing foot Off		
7	Basic position down (left-hand arrow)		
	Basic position up (right-hand arrow)		

2.7.1 Programming after Code Number Input


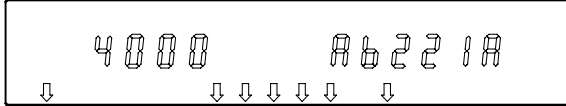

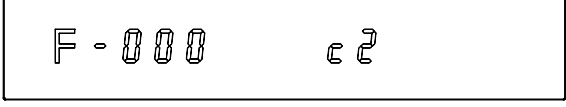



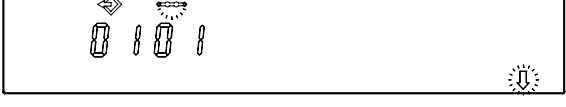

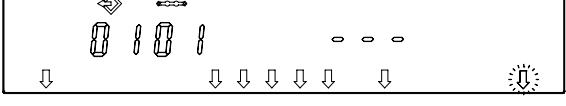


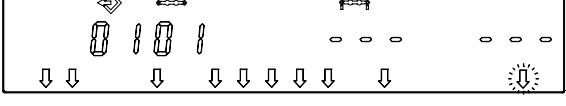
- 1.)  +  →  KL2370
- Input code number using keys 0...9.
- 2.)  →  KL2371
- 3.)  →  KL2397c
- 4.)  →  KL2373
- 5.)  →  KL2374

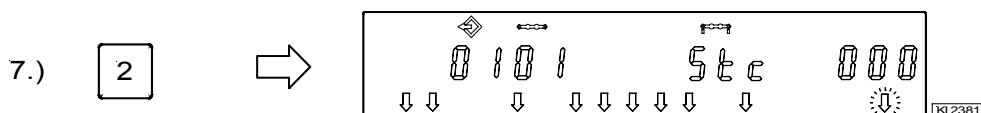
Activate programming of seams TEACH IN using key 0 / Display of pattern number.

Determine new pattern numbers using keys 0...9. Select the next available pattern number using key +.

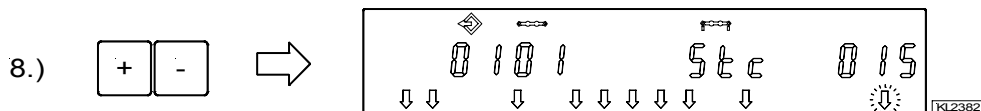
Continue programming seams as described in the next chapter "Programming without Code Number Input" from item 4.) onwards.

2.7.2 Programming without Code Number Input

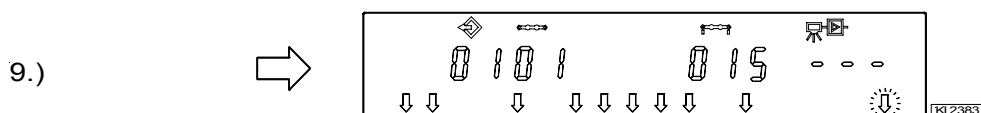
- 1.)  →  KL2398c
- 2.)  →  KL2376
- 3.)  →  KL2377
- Activate programming of seams TEACH IN using key 0 / Display of pattern number.
Determine new pattern numbers using keys 0...9. Select the next available pattern number using key +.
- 4.)  →  KL2378
- Display of seam number
- 5.)  →  KL2379
- 6.)  ...  →  KL2380
- Enable all desired functions of the actual seam. as for ex. light barrier, by pressing keys 1...9.



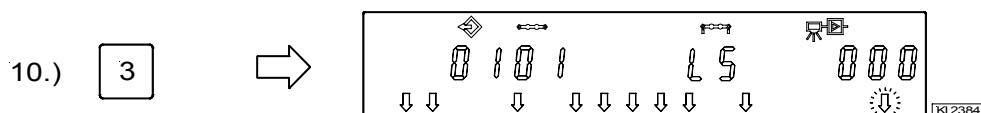
- After having enabled stitch counting by means of key **2**, the number of stitches can be varied within 2 seconds. If stitch counting has already been selected, press key **2** for approx. 2 seconds in order to vary the number of stitches. The arrow above key **2** switches briefly.



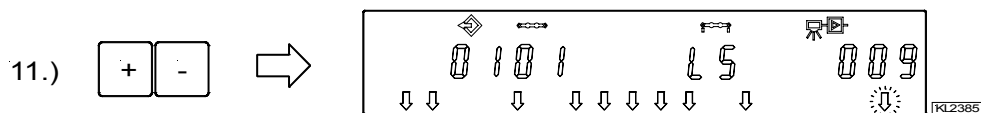
- Press key **+/-** immediately.



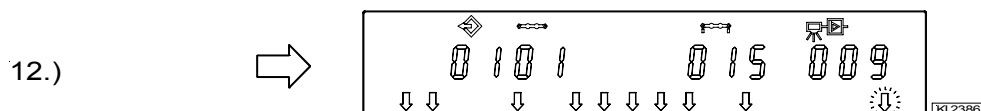
- If key **+/-** is not pressed within 2 seconds, the previously input number of stitches will be displayed under the corresponding symbol (normal display).



- After having enabled the light barrier using key **3**, the number of light barrier compensating stitches can be varied within 2 seconds. If the light barrier has already been selected, press key **3** for approx. 2 seconds in order to vary the number of light barrier compensating stitches. The arrow above key **3** switches briefly.



- Press key **+/-** immediately.



- If key **+/-** is not pressed within 2 seconds, the previously input number of stitches will be displayed under the corresponding symbol (normal display).
- Change to the next seam by pressing the **E** key once.
- Exit programming of seams by pressing the **P** key twice.
- **Begin sewing** in order to save the values.

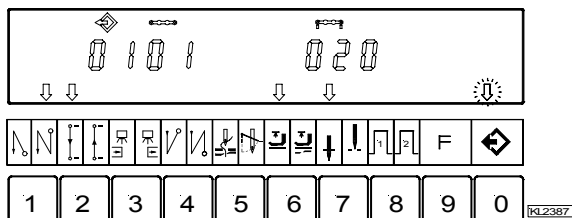
2.7.3 Detailed Example

A seam 01 with double start backtack, stitch counting forward, down position, sewing foot up, a seam 02 with stitch counting forward, down position, and a seam 03 with light barrier, double end backtack, thread trimming, up position, sewing foot up, are to be programmed (without code number input) under the next possible pattern number, e.g. 01.

- Turn power on
- Press the **P** key → Parameter 000 is displayed.
- Press key **0** → Pattern number is displayed. The pattern symbol and the left-hand arrow above key **0** blink.
- Press the **F2** key twice → Existing patterns will be deleted. If there is a 2nd pattern or more patterns, pattern number 01 must be inserted by pressing the INSERT **F1** key.

Set functions of seam 01:

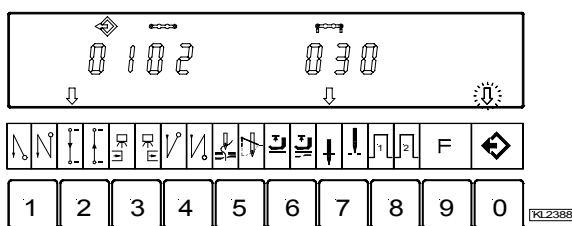
- Press the **E** key → Seam number **01** is displayed.
- Press the **E** key → Functions can be programmed.
- Press key **1** → The right-hand arrow above key 1 indicates that the double start backtack is On. The start backtack stitches must be inputted individually.
- Press key **2** → The left-hand arrow above key 2 indicates that stitch counting forward is On. The number of stitches can be varied as previously shown.
- Press key **6** → The left-hand arrow above key 6 indicates that the sewing foot is automatically lifted in the seam.
- Press key **7** → The left-hand arrow above key 7 indicates that the needle is in the down position.



Display of seam **01** after correct function input

Set functions of seam 02:

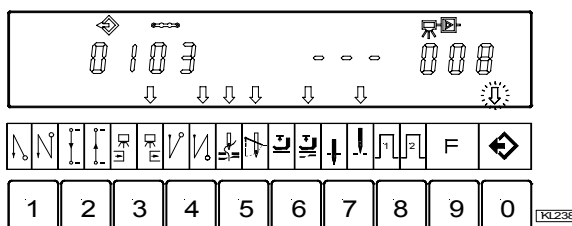
- Press the **E** key → Seam number **02** is displayed.
- Press key **2** → The left-hand arrow above key 2 indicates that stitch counting forward is On. The number of stitches can be varied as previously shown.
- Press key **7** → The left-hand arrow above key 7 indicates that the needle is in the down position.



Display of seam **02** after correct function input

Set functions of seam 03:

- Press the **E** key → Seam number **03** is displayed.
- Press key **3** → The right-hand arrow above key 3 indicates that the light barrier operates covered → uncovered. The light barrier compensating stitches can be varied as previously shown.
- Press key **4** → The right-hand arrow above key 4 indicates that the double end backtack is On. The end backtack stitches must be inputted individually.
- Press key **5** → Both arrows above key 5 indicate that thread trimmer and thread wiper are On.
- Press key **6** → The left-hand arrow above key 6 indicates that the sewing foot is automatically lifted in the seam.
- Press key **7** → The left-hand arrow above key 7 indicates that the needle is in the up position.



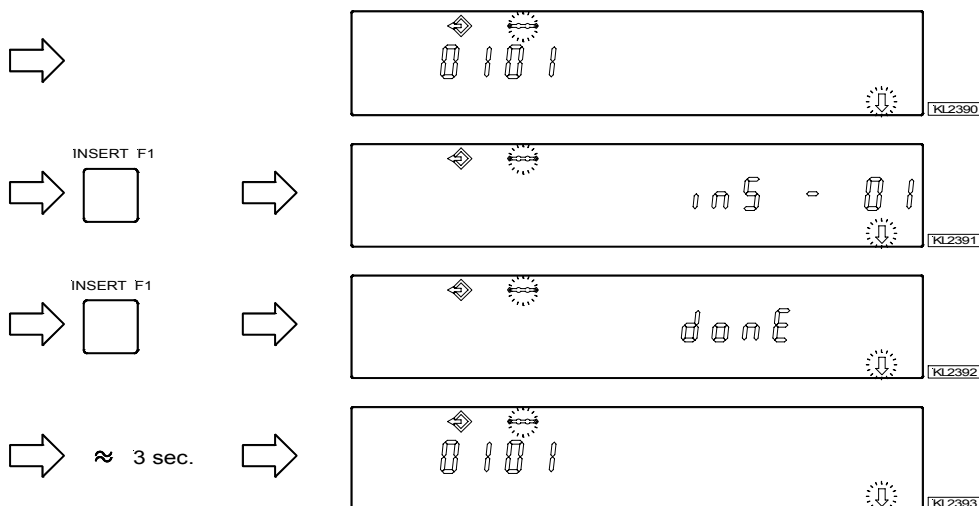
Display of seam **03** after correct function input

- Press the **P** key twice → Exit programming of seams.
- Begin sewing once → The programmed data is saved.

2.7.4 Inserting a Seam or Pattern

A pattern or seam can be inserted using the A “INSERT F1” key, on condition that the symbol above the pattern or seam number is blinking during programming.

- Select the pattern or seam number where the new number is to be inserted. The symbol above the pattern or seam number must be blinking. Proceed as shown in chapters “Programming with or without Code Number Input”.
- Press the A “INSERT F1” key twice in brief succession. The new pattern or seam number will be inserted. All subsequent numbers are automatically augmented by “1”. The following example shows how a seam is inserted before an existing seam.

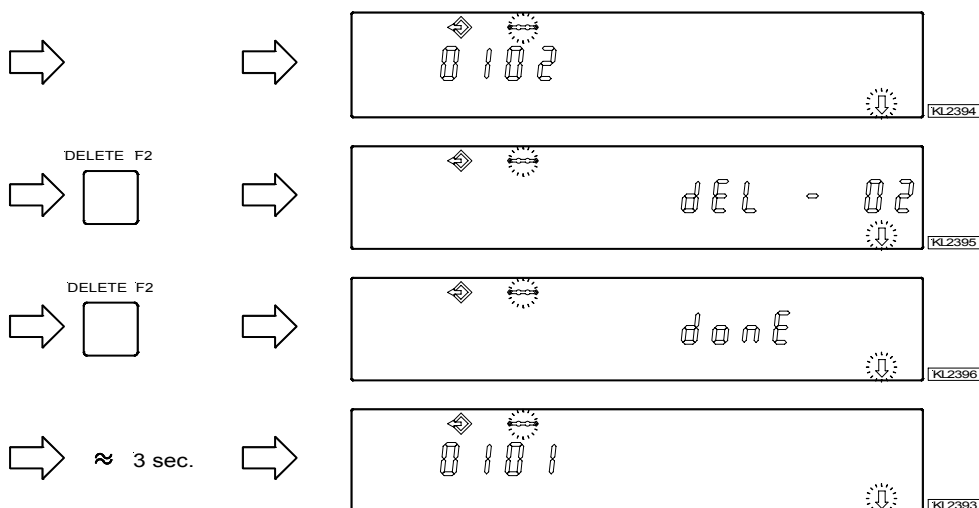


- Any desired function can now be assigned to the new seam.

2.7.5 Deleting a Seam or Pattern

A pattern or seam can be deleted using the B “DELETE F2” key, on condition that the symbol above the pattern or seam number is blinking during programming.

- Select the pattern or seam number to be deleted. The symbol above the pattern or seam number must be blinking. Proceed as shown in chapters “Programming with or without Code Number Input”.
- Press the B “DELETE F2” key twice in brief succession. The pattern or seam number will be deleted. All subsequent numbers are automatically reduced by “1”. The following example shows how seam number 2 is deleted.



2.7.6 Execution (Pattern) Mode

- Press key 0 → The programmed seams are enabled. Arrow above key 0 is On (but it does not blink).
- Press key +/- → Selection of pattern. Only if several patterns have been programmed.
- Press the E key → If you do not wish to start with the first seam, select a different seam number. Press the E key several times until the desired seam number is displayed.
- The drive can now be started by pressing the pedal, and the pattern can be executed.
- Press key 0 → The programmed seams are disabled. Arrow above key 0 is Off.

2.7.7 Further Settings for TEACH IN

Functions	Parameter
Seam suppression if 0 stitch is set (Std)	321

321 = 0 **Seam suppression disabled:** i. e. if the light barrier is Off and stitch counting is set at 0 stitches, a free seam will be performed.

321 = 1 **Seam suppression enabled:** i. e. if the light barrier is Off and stitch counting is set at 0 stitches, the program switches to the next seam if the function is On. In case functions such as start of end backtack, thread trimmer, signals A1 / A2 are On, they will be performed before switching to the next seam.

Functions	Parameter
Correction seam On/Off, seam or pattern interruption by thread trimmer (dkn)	322

322 = 0 **Correction seam disabled:**
- The seam can be interrupted by pressing the pedal to pos. -2. The control switches automatically to the next seam number.

322 = 1 **Correction seam enabled:**
- The seam can be interrupted by pressing the pedal to pos. -2 and thread trimming, and a correction seam (free seam) can be performed manually.
- The correction seam can be completed by pressing the pedal to pos. -2 or by light barrier if it is On. Then the control switches automatically to the next seam number.

322 = 2 **Seam or pattern interruption by thread trimming:**
- The seam can be interrupted by pressing the pedal to pos. -2 and thread trimming, even if the thread trimmer is Off. Then the program switches back to the **first** seam of the selected pattern.

Sewing foot lift functions if TEACH IN is On:

After power on the sewing foot is down even if sewing foot lifting after thread trimming is On on the control panel. the sewing foot can be lifted by pressing the pedal to pos. -1 or -2.

If sewing foot lifting is On at the seam end (right-hand arrow above key 6 on the V820 control panel On), the sewing foot is lifted after completing the seam. After having pressed the pedal to pos. 0 (neutral) the control switches to the next seam, and the sewing foot remains lifted until sewing is started. Whether or not the sewing foot is On or Off does not influence the seam end in the new seam.

Automatic sewing foot lift with pedal forward at the seam end, if light barrier or stitch counting is On:

023 = 0 Automatic sewing foot lift Off

023 = 1 Automatic sewing foot lift On

Parameter 023	Key 6 (right-hand arrow)	Sewing foot with pedal forward after the seam end	Sewing foot with pedal = 0
0	0	Off	Off
1	0	On	Off
1	1	On	On
0	1	On	On

Functions	Parameter
Sewing foot lifted after power On, or as programmed (FLn)	323

This function is active only if TEACH IN is On.

- 323 = 0** After power On, the sewing foot lift function works as programmed.
323 = 1 The sewing foot is always lifted after power On, even if automatic sewing foot lift is not programmed.

Functions	Parameter
TEACH IN On/Off (ti)	324

Using this parameter, TEACH IN can be enabled and disabled without control panel. However, TEACH IN programming is possible only with the V820 control panel.
 When the V820 is connected, TEACH IN is enabled and disabled using key 0.

Functions	Parameter
Erasing all TEACH IN data (cti)	325

- Input code number 3112 after power On → Press the **E** key
- Input parameter 325 → Press the **E** key
- Input 3112 → Press the **P** key
- The display briefly shows “**deleted**”, and a short acoustic signal is issued. → Press the **P** key
- All TEACH IN programs have been erased! → Press the **P** key
- The sewing process is enabled again.
- If you press key **0** now, the display shows “**no ProG**”

2.7.8 Disabling the Keys on V820/V850 with Activated TEACH IN

- 292 = 0** Keys 1...0 are disabled.
293 = 0 The **F1** key is disabled.
294 = 0 The **F2** key is disabled.
326 = 0 The **P** and **E** keys are Off (no programming, no switching from one seam to the next).
326 = 1 The **P** key is On and the **E** key is Off (programming enabled; switching from one seam to the next disabled using the **E** key).
326 = 2 The **P** key is Off and the **E** key is On (programming disabled; switching from one seam to the next enabled using the **E** key).
326 = 3 The **P** and **E** keys are On.

Disable switching from one pattern to the next at the seam start using keys + und –.

- 327 = 0** Keys + and – are disabled (switching from one pattern to the next impossible).
327 = 1 Keys + and – are enabled.

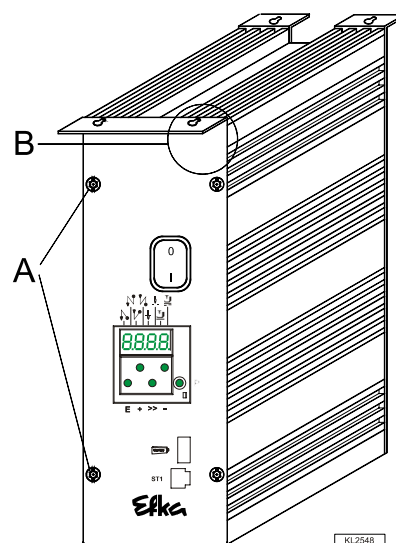
3 Connection of Accompanying Devices

3.1 Connection of a Sewing Light with Transformer

**ATTENTION**

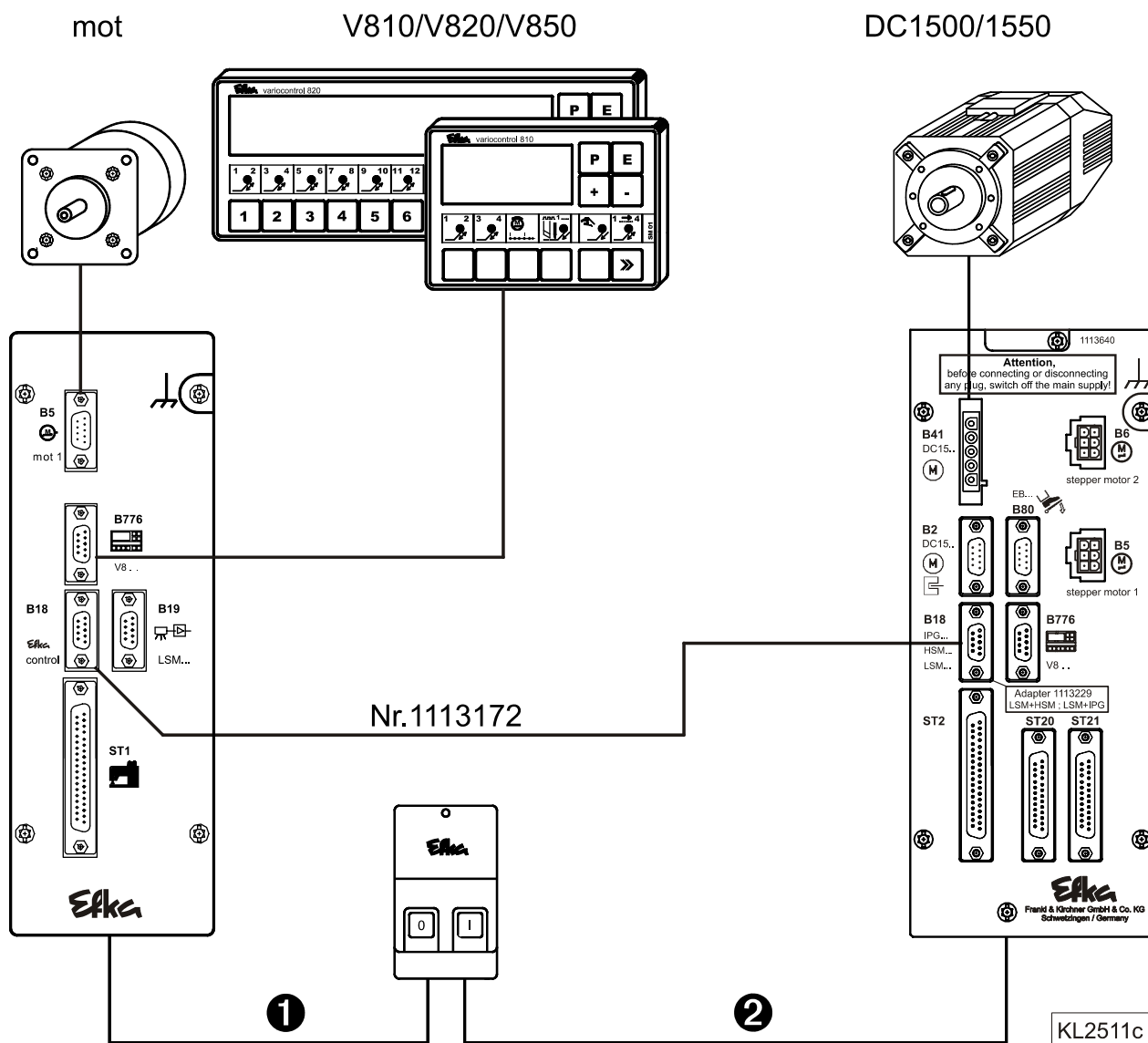
Before opening the cover, turn power off!

- **Switch off the control and remove mains plug from outlet**
- Unscrew the control unit from the machine table
- Loosen 2 screws (**A**) each at the front and at the rear
- Open the left part of the housing
- Pull the sewing light cable through the provided cable bushing
- Area (**B**): Connect strands with clamp on the printed circuit board
- Insert earth lead into plug-in device on the housing part
- Close and screw-connect the housing
- Mount the control unit on the machine table

**CAUTION**

When the sewing light is connected, it is always current-carrying (230V), even if the control unit is switched off! Only one sewing light with transformer can be connected to the control unit!

3.2 Connection Scheme of a SM210A Stepping Motor Control



❶ - Stepping motor control, e. g. SM210A ❷ - Sewing drive control, e. g. AB425S

The control (B18) and the SM210A....stepping motor control (B18) are connected using adapter cord no. 1113172.

If a light barrier is required for the sewing process, it must be connected to socket B9 on the stepping motor control. The light barrier signal is transmitted via the connecting cable from the SM210A to the sewing drive. Should an IPG001 pulse encoder or a HSM001 Hall sensor module be necessary besides the light barrier module, use adapter cord no. 1113229, which is to be connected to socket B19 of the SM210A.... stepping motor control.

Unless a stepping motor control is provided, adapter cord no. 1113229 for light barrier module and pulse encoder or Hall sensor module is connected to socket B18 of the sewing drive.

For your notes:

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